ABSTRACT

A radio link protocol for a communications system ensures that delivery of Internet protocol data packets occurs within a set delay bound for the packets, in order to satisfy specified quality of service levels. Data packets arriving at a transmitter are subdivided into data blocks. As each block is transmitted, the transmitter starts an associated acknowledgement timer. The timer is turned off, before it expires, if the transmitter timely receives from a receiver a message informing the transmitter that the associated block was successfully received. If such message is not received, the timer expires and the transmitter sends an acknowledgement request signal to the receiver and starts an associated panic timer. The panic timer is turned off, before it expires, if the transmitter subsequently timely receives a message that the associated block was successfully received. If such message not received, the panic timer expires and the transmitter sends one of more copies of the corresponding block to the receiver before occurrence of the delay bound. If the transmitter receives a negative acknowledgement message from the receiver, that a block is missing or corrupted, the transmitter retransmits a copy of the block to the receiver. To reduce messaging traffic, the transmitter cancels acknowledgement and panic timers based upon information contained in negative acknowledgement messages, and the receiver can periodically send acknowledgement messages to inform the transmitter of successfully received blocks.